



Patent
Attorney's Docket No. 1003301-000054

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)	
Mikhail Kejzelman et al.)	Group Art Unit: 1793
Application No.: 10/689,656)	Examiner: CHRISTOPHER S.
Filed: October 22, 2003)	KESSLER
For: METHOD OF PREPARING IRON-)	Confirmation No.: 6495
BASED COMPONENTS)	
)	
)	
)	

Declaration under 37 C.F.R. § 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Paul Skoglund, declare as follows:

1. I am over the age of 21 years and am competent to make this declaration.
2. My address is Skansvägen 16, SE-263 52, Lerberget, Sweden.
3. I was educated at Chalmers University of Technology, Gothenburg, Sweden, from 1975 to 1980, and was awarded the degree of Master of Science in Mechanical Engineering, Machine Design, and Power Engineering.
4. From 1990 to the present time, I have been employed by Höganäs AB, Sweden, in various capacities, including Manager of Laboratory Service, R & D Department; Manager of Application Development, R & D Department; and Manager of Application Engineering and New Product Introduction, Marketing Department.
5. From 1983 to 1989, I was employed by CIPS KB, Höganäs Sweden, in the capacity of Research and Development Engineer.

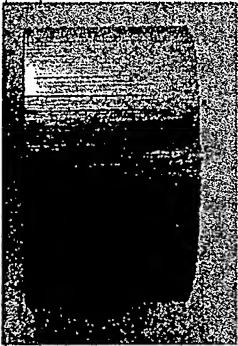
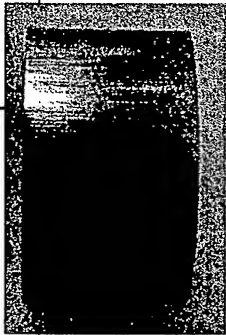
6. From 1981 to 1983, I was employed by BRIAB AB, Falkenberg, Sweden, in the capacity of Design and Development Engineer.
7. From 1980 to 1981, I was employed by Kattegatt skolans Gymnasium, Halmstad, Sweden, in the capacity of Teacher in Technology.
8. I am fluent in oral and written English.
9. I am one of the inventors named in U.S. Patent Application Serial No. 10/689,656, filed October 22, 2003.
10. I am aware of the Office action issued by the U.S. Patent and Trademark Office on January 24, 2008 in said patent application.
11. In order to further show the unobvious nature of the invention claimed in said patent application, the following experiments were carried out at my direction and under my control.
12. A powder similar to iron powder A1 in Table 1 of Ozaki was prepared. This powder is a pure water-atomized iron powder, designated AT40.29, and available from Höganäs AB, Sweden. The particle size distribution of AT40.29 is given in Table 1 below. The particle size distribution of iron powder A1 of Ozaki and the particle size distribution of claim 1 in Ozaki are included in Table 1 below for comparison.
13. A powder according to the invention claimed in U.S. Patent Application Serial No. 10/689,656 is Astaloy Mo from Höganäs AB, Sweden, and is a water-atomized completely alloyed steel powder containing 1.5 wt% Mo. This powder corresponds to the powder disclosed in Example 1, at page 6 of the specification of the above-mentioned patent application. The particle size distribution of this powder is also given in Table 1 below.

Table 1

Powder according to Ozaki				Powder according to the present invention	
Screening	Powder AT 40.29	Powder A1 in Ozaki Example 1-2	Powder according to Ozaki Claim 1	Screening	Astaloy Mo (+45)
+ 1 mm	0	0	0	>250	0
250-1 mm	32	33	0-45	150-250	16.1
180-250 mm	55	57	30-65	106-150	24.5
150-180 mm	11	9	4-60	75-106	27.1
-150 mm	2	1	0-10	45-75	32.3
				-45	0

14. Compaction tests were conducted on both the AT40.29 powder and the Astaloy Mo powder.
15. The Astaloy Mo powder was mixed with 0.2 wt% carbon (C-UF) and 0.4 wt% Kenolube lubricant according to Example 1 of the specification of the above-mentioned patent application.
16. The AT40.29 powder was mixed with 0.2 wt% zinc stearate powder, according to Example 1-2 of Ozaki (column 14, lines 51-52).
17. Each of the resulting mixtures were compacted into cylinders having a diameter of 25 mm and a height of 15 mm, without using die wall lubrication. The compaction was performed at 1170 MPa-30 pcs. The static ejection force (F_s) and the dynamic ejection force (F_d) were measured for the compacted cylinder, and the surface appearance of the ejected cylinders was observed. The results are given in Table 2 below.

Table 2

	Fs (kN)	Fd (kN)	
Ozaki (AT40.29)	104.7	54.4	
The present invention (AstMo(+45))	67.4	40.7	


Scratched surface of compacted cylinder no 4.

Good steady state surface of the 30th compacted cylinder.

18. From these results, I conclude that the ejection forces necessary for cylinders made of powders according to the invention claimed in the above-mentioned patent application are much lower than the ejection forces necessary for cylinders made from the powder exemplified in Ozaki. Furthermore, the surfaces of cylinders made from the powder exemplified by Ozaki are unacceptably scratched, preventing industrial production. The results are unexpected in light of the references that the Examiner has cited. In addition, the results are consistent with, and support, the statement in the specification of the above-mentioned application at page 5 that "By using the powders according to the present invention it has unexpectedly been found that the ejection force is reduced at high pressures, about 1000 MPa, and that components having acceptable or even perfect surfaces may be obtained also when die wall lubrication is not used."

19. All statements made herein of my own knowledge are true, and all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: 2008-06-23

By: 
Paul Skoglund